TECHNICAL BASIS FOR TIER I OPERATING PERMIT

DATE: November 12, 2002

PERMIT WRITER: Harbi Elshafei

PERMIT COORDINATOR: Bill Rogers

SUBJECT: AIRS Facility No. 067-00017, J.R. Simplot Co., Food Group, Heyburn Final Tier I Operating Permit

Permittee:	J.R. Simplot Co., Food Group
Permit Number:	067-00017
Air Quality Control Region:	63
AIRS Facility Classification:	A
Standard Industrial Classification:	2037
Zone:	12
UTM Coordinates:	273.1, 4714.2
Facility Mailing Address:	P.O. Box 676
County:	Minidoka/Cassia
Facility Contact Name and Title:	Jim Beckwith, Manager of Environmental Health and Safety
Contact Name Phone Number:	(208) 677-7115
Responsible Official Name and Title:	Bruce Hauber, Heyburn Plant Unit Director
Exact Plant Location:	Highway 30, South of Heyburn, East of Snake River
General Nature of Business & Kinds of Products:	Potato and other food processing/Ethanol production

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LIST OF ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AMU	Air Makeup Unit
AP-42	Compilation of Air Pollutant Emissions Factors
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
gr/dscf	grains per dry standard cubic foot
H_2S	hydrogen sulfide
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
JRS	J.R. Simplot Co., Food Group
km	kilometer
lb/hr	pound per hour
MACT	Maximum Achievable Control Technology
MMBtu/hr	million British thermal units per hour
MMscf	million square cubic feet
MW	megawatts
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operations & maintenance
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
PW	process weight
Rules	*Rules for the Control of Air Pollution in Idaho*
SIP	State Implementation Plan
SO_2	sulfur dioxide
T/day	tons per day
T/yr	tons per year
VOC	volatile organic compound
WESP	wet electrostatic precipitator

PUBLIC COMMENT/AFFECTED STATES/EPA REVIEW SUMMARY

A 30-day public comment period for the J.R. Simplot draft Tier I operating permit was held from July 25, 2002, through August 28, 2002 in accordance with IDAPA 58.01.01.364, (*Rules for the Control of Air Pollution in Idaho*). A public hearing was held on August 27, 2002. JRS was the only entity to provide comments. Those comments and the DEQ's responses were provided as an appendix in the proposed permit statement of basis.

IDAPA 58.01.01.008.01, defines *affected* states as: *"All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within fifty (50) miles of the Tier I source."* A review of the site location information included in the permit application indicates the facility is located within 50 miles of a state border. Therefore, the states of Utah and Nevada were provided an opportunity to comment on the draft Tier 1 operating permit.

After the public comment period, a proposed permit was developed and was submitted to the EPA for their review as required by IDAPA 58.01.01.366. The proposed permit incorporated all changes resulting from comments submitted during the public comment period. The EPA provided no written objection to the proposed permit.

1. PURPOSE

The purpose of this memorandum is to describe the legal and factual basis for this draft Tier I operating permit in accordance with IDAPA 58.01.01.362, *Rules for the Control of Air Pollution in Idaho (Rules).*

The Idaho Department of Environmental Quality (DEQ) staff has reviewed the information provided by J.R. Simplot Company, Food Group regarding the operation of the potato processing and ethanol production plants located in Heyburn, Idaho. This information was submitted based on the requirements to submit a Tier I operating permit in accordance with IDAPA 58.01.01.300 of the *Rules.*

Based on the information submitted, DEQ has drafted a Tier I permit for J.R. Simplot Company. The permit was submitted for public comment and a public hearing was held. Following the public comment period, a proposed permit is developed and will be forwarded to the Environmental Protection Agency (EPA) for review, in accordance with IDAPA 58.01.01.366.

2. SUMMARY OF EVENTS

August 17, 1995	DEQ received the Tier I operating permit application from JRS for their Heyburn facility. The application was prepared by Brown and Caldwell, the facility's initial consulting firm.
October 16, 1995	DEQ determined the application administratively complete.
February 1, 1999	DEQ received a revised Tier I operating permit application prepared by McCulley, Frick, and Gilman, Incorporated.
April 2, 1999	DEQ determined the Tier I operating permit, prepared by McCulley, Frick, and Gilman, Incorporated, administratively complete on April 2, 1999.
August 28, 2002	A public comment period was held from July 25, 2002, through August 28, 2002. A public hearing was held on August 27, 2002. Comments were received from the J.R. Simplot Company.

3. BASIS OF THE ANALYSIS

The following documents were relied upon in preparing this memorandum and the Tier I operating permit:

- Tier I operating permit application, received by DEQ on August 17, 1995
- Revised Tier I operating permit application, received by DEQ on February 1, 1999
- Facility-wide Tier II operating permit application, received by DEQ on February 12, 2000
- Updated facility-wide Tier II operating permit application, received by DEQ on March 15, 2002
- Tier II operating permit, pending
- Existing facility PTCs
- Existing facility consent orders
- Existing facility DEQ inspection reports
- Rules for the Control of Air Pollution in Idaho
- Code of Federal Regulations, Title 40
- *Compilation of Air Pollutant Emission Factors*, AP-42, Fifth Edition, January 1995, Office of Air Quality Planning and Standards, EPA
- Guidance developed by the EPA and DEQ
- Title V permits issued by other jurisdictions
- Documents and procedures developed in the Title V Pilot operating permit Program

4. FACILITY DESCRIPTION

4.1 GENERAL PROCESS DESCRIPTION

Emissions units existing at the JRS, Heyburn plant are described below. These emissions units include a potato processing plant, boilers, air makeup units, ethanol production plant and storage tanks, and the wastewater treatment facility.

4.1.1 Potato Processing Plant

Raw potatoes are delivered to the facility by truck and unloaded into the storage and receiving buildings. The potato trucks are unloaded in enclosed storage buildings. Inside the storage buildings, potatoes are pushed from the storage piles into a water flume system that is used to wash and transport the potatoes. They are then mechanically sorted by size and inspected.

After sorting and inspection, the potatoes are transported by flume to one of four production lines (designated Lines 1, 2, 3, and 4). Lines 1, 2, and 4 are equipped with a hot water vat (blancher), a dryer, and a fryer. These lines are used primarily to process french fries. Line 3 is equipped with a blancher and a fryer; it is used primarily to process the pre-formed products. There is no dryer associated with Line 3.

The potatoes are peeled by steam peelers at the front of the production lines. They are then transported by flume to cutting decks where they are cut into various shapes and lengths. After the potatoes are cut, they are dipped into the blanchers to remove excess sugars. On Lines 1, 2, and 4, the potato products are then conveyed to dryers to remove surface moisture. Each dryer is typically one large unit that is divided into two or three zones using internal baffles; each zone is heated with natural gas-fired burners.

Once the surface moisture is removed, either the potatoes are placed directly in fryers or (depending on the product) dipped in batter prior to being placed in fryers. Hot cooking oil is used to partially cook the products before they are frozen. Steam coils are used to heat the oil in the fryers. A typical fryer system includes the fryer, an oil miser, and an oil filter. After the potato products are fried, the final product is frozen and packed for shipping.

4.1.2 Boilers

The steam-generating plant consists of a Springfield boiler, a Cleaver-Brooks boiler, and a Nebraska boiler that provide steam, primarily to the peelers, blanchers, fryers, and ethanol plant.

4.1.3 Air Makeup Units

A number of natural gas-fired AMUs are used to heat the buildings in cold weather. These heaters vent into the warehouse and have no direct exterior emissions points.

4.1.4 Ethanol Production Plant and Storage Tanks

The ethanol plant is a continuous cook, batch fermentation, and dehydration system. The ethanol plant uses fruit, vegetable, and grain waste, including potato waste from the Heyburn facility and other facilities.

The ethanol plant receives shelled corn, whole wheat, milo, granulated sugar, and other grains from delivery trucks. The raw materials are moved several times via screw conveyors and recovery elevators into storage bins, surge bins, and weigh belts. Following the weigh belts, the material is dropped into the hammermill to be ground into the correct size for use in the ethanol plant. A baghouse controls particulate emissions from the receiving area, the material handling operations, and the hammermill.

Wet potato waste is pumped from the potato plant to vertical hammermills that grind the waste into slurry. The slurry is mixed with enzymes that break down the waste, then pumped into a pressure cooker. Steam is added to the pressure cooker. After the slurry is cooked, additional enzymes are added before it is pumped into a holding tank. The slurry is then cooled to fermentation temperature (approx. 100°F) and pumped to one of six fermenters. Yeast, enzymes, and other chemicals are added to further promote fermentation. The slurry (now called mash) is fermented for two days. After the fermentation process is complete, the fermented mash (called beer) is transferred to a holding tank (called a beer well). From the beer well, the beer is pumped to an atmospheric distillation tower where the alcohol is separated from the water and solids. The alcohol is distilled to approximately 95% purity. The water and solids are pumped to a centrifuge, which separates the solids from the liquids. The solids are sold to make cattle feed, and the liquids go to the waste treatment plant.

The alcohol is pumped from the distillation column to a molecular sieve dehydrator to remove the remaining water. The result is 200 proof alcohol, which flows from the dehydrator to shift tanks. Once per shift, the alcohol is mixed with unleaded gasoline and pumped to underground storage tanks.

4.1.5 Wastewater Treatment Facility

An anaerobic digester is located at the wastewater treatment facility. In the digester, starch-laden water is retained and acted upon by bacteria. The digestion process produces gaseous byproducts (CH_4, CO_2, and H_2S), that are collected from under the digester cover. Initially, the gas was burned by a flare system, but an H_2S scrubbing system was installed in 2001.

The emissions units, the associated air pollution control equipment, and the stack parameters are described in either the operating permit or the updated Tier II operating permit application dated March 15, 2002.

4.2 FACILITY CLASSIFICATION

The facility is classified as a major facility, in accordance with IDAPA 58.01.01.008.10, for Tier I permitting purposes because the facility has the PTE for CO, PM, PM_{10}, and NO_x at rates greater than 100 T/yr. The facility is also major as defined in IDAPA 58.01.01.006.55; however, is not subject to PSD permitting requirements because the facility's PTE air emissions of any regulated air pollutants is below 250 T/yr.

One boiler at the facility is subject to federal NSPS in accordance with 40 CFR 60. The facility is not subject to federal NESHAP in accordance with 40 CFR 61, or MACT in accordance with 40 CFR 63. The Standard Industrial Classification is 2037 and 2869, *Ethanol Production*. The AIRS/AFS classification is A.

4.3 AREA CLASSIFICATION

The facility is located within AQCR 63 and is located in Minidoka and Cassia counties. The area is designated as attainment or unclassifiable for all federal and state criteria air pollutants. There are no Class I areas within 10 km of the facility. Utah and Nevada are within 50 miles of the facility; therefore, are affected states, in accordance with IDAPA 58.01.01.008.01.

4.4 PERMITTING HISTORY

August 17, 1995	DEQ received the Tier I operating permit application for the JRS facility in Heyburn.
October 16, 1995	DEQ determined the Tier I operating permit application administratively complete.
May 28, 1998	DEQ issued PTC No. 067-00017 to JRS.
November 12, 1998	DEQ issued a consent order to JRS.

February 1, 1999	The JRS Heyburn facility submitted a revised Tier I operating permit application.
February 3, 1999	DEQ issued PTC No. 067-00017 to JRS.
April 2, 1999	DEQ determined the revised Tier I operating permit application administratively complete.
October 7, 1999	DEQ issued a consent order to JRS.
November 15, 1999	DEQ issued PTC No. 067-00017 to JRS.
February 12, 2000	The JRS Heyburn facility requested that DEQ delay issuing the facility's Tier I operating permit until the Tier II operating permit has been issued.
April 3, 2000	DEQ issued PTC No. 067-00017 to JRS.
June 30, 2000	DEQ issued PTC No. 067-00017 to JRS.
September 27, 2000	DEQ issued a consent order to JRS.
February 12, 2001	The JRS Heyburn facility submitted a Tier II operating permit application to DEQ.
October 17, 2001	DEQ determined the Tier II operating permit application administratively complete.
December 17, 2001	The JRS Heyburn facility submitted to DEQ a facility-wide air modeling for regulated pollutant emissions for the sources existing at the facility.
March 15, 2002	The JRS Heyburn facility submitted an updated Tier II operating permit application.
March 21, 2002	DEQ staff conducted a tour at the JRS Heyburn facility.
March 22, 2002	DEQ requested that JRS supplement the updated Tier II operating permit application with additional information.
March 29,2002	DEQ received the requested supplemental information from JRS.
April 5,2002	DEQ staff met with JRS staff and discussed the updated Tier II operating permit application dated March 15, 2002.
April 8, 2002	DEQ determined the updated Tier II operating permit application dated March 15, 2002, complete.
June 18,2002	DEQ staff met with JRS staff and discussed the draft Tier I and Tier II operating permits that sent to the facility.
July 25, 2002	A public comment period started and ended on August 28, 2002.
August 27, 2002	A public hearing was held in Rupert, Idaho.

5. REGULATORY ANALYSIS

5.1 FACILITY-WIDE APPLICABLE REQUIREMENTS

5.1.1 Fugitive Particulate Matter, IDAPA 58.01.01.650-651

5.1.1.1 Requirement

Permit Condition 2.1 states that all reasonable precautions shall be taken to prevent PM from becoming airborne in accordance with IDAPA 58.01.01.650-651.

Permit Condition 2.5 also states that fugitive emissions shall not be observed leaving the property boundary for a period or periods aggregating more than three minutes in any 60-minute period. Visible emissions shall be determined by EPA Reference Method 22, as described in 40 CFR 60, Appendix A, or by a DEQ-approved alternative method. This condition is taken from Permit Condition 1.3 in PTC No. 067-00017, dated November 15, 1999, and is an applicable permit condition for the Tier I operating permit in accordance with IDAPA 58.01.01.322.01.

5.1.1.2 Compliance Demonstration

Permit Condition 2.2 states that the permittee is required to monitor and maintain records of the frequency and the methods used by the facility to reasonably control fugitive particulate emissions. Examples of strategies to control fugitive emissions are included in IDAPA 58.01.01.651 (e.g., using water or chemicals, applying dust suppressants, using control equipment, covering trucks, paving roads or parking areas, and removing materials from streets).

Permit Condition 2.3 requires that the permittee maintain a record of all fugitive dust complaints received. In addition, the permittee is required to take appropriate corrective action as expeditiously as practicable after a valid complaint is received. The permittee is also required to maintain records that include the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

To ensure that the methods being used by the permittee to reasonably control fugitive PM emissions whether or not a complaint is received, Permit Condition 2.4 requires that the permittee conduct quarterly inspections of the facility. The permittee is required to inspect potential sources of fugitive emissions during daylight hours and under normal operating conditions. The fugitive emissions inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any fugitive emissions are present, the permittee shall perform a Method 22 visible emissions test at the property boundary in accordance with the procedures outlined in IDAPA 58.01.01.625. If visible emissions are observed leaving the property boundary of the permitted facility for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance to DEQ in writing within 72 hours. The permittee is also required to maintain records of the results of each fugitive emissions inspection.

Both Permit Conditions 2.3 and 2.4 require the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid complaint or determining that fugitive particulate emissions are not being reasonably controlled meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.2 Control of Odors, IDAPA 58.01.01.775-776

5.1.2.1 Requirement

Permit Condition 2.6 and IDAPA 58.01.01.776 both state: *"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution."* This condition is currently considered federally enforceable until such time it is removed from the SIP, at which time it will be a state-only enforceable requirement.

5.1.2.2 Compliance Demonstration

Permit Condition 2.7 requires the permittee to maintain records of all odor complaints received. If the complaint has merit, the permittee is required to take appropriate corrective action as expeditiously as practicable. The records are required to contain the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

Permit Condition 2.7 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid odor complaint meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.3 Visible Emissions, IDAPA 58.01.01.625

5.1.3.1 Requirement

Permit Condition 2.8 and IDAPA 58.01.01.625 state: *"(No) person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20 percent (20%) opacity as determined ..."* This provision does not apply when the presence of uncombined water, NO_x, and/or chlorine gas is the only reason for the failure of the emissions to comply with the requirements of this rule.

5.1.3.2 Compliance Demonstration

To ensure reasonable compliance with the visible emissions rule, Permit Condition 2.9 requires that the permittee conduct quarterly visible emissions inspections of the facility. The permittee is required to inspect potential sources of visible emissions during daylight hours and under normal operating conditions. The visible emissions inspection consists of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emissions covered by this section, the permittee must either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is determined to be greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee must take corrective action and report the exceedance in its annual compliance certification and in accordance with the excess emissions rules in IDAPA 58.01.01.130-136. The permittee is also required to maintain records of the results of each visible emissions inspection and each opacity test when conducted. These records must include the date of each inspection, a description of the permittee's assessment of the conditions existing at the time visible emissions are present, any corrective action taken in response to the visible emissions, and the date corrective action was taken.

It should be noted that if a specific emissions unit has a specific compliance demonstration method for visible emissions that differs from Permit Condition 2.9, then the specific compliance demonstration method overrides the requirement of Permit Condition 2.9. Permit Condition 2.9 is intended for small sources that would generally not have any visible emissions.

Permit Condition 2.9 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of discovering visible emissions meets

the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.4 Excess Emissions, IDAPA58.01.01.130-136

5.1.4.1 Requirement

Permit Condition 2.10 requires that the permittee comply with the requirements of IDAPA 58.01.01.130-136 for startup, shutdown, scheduled maintenance, safety measures, upset, and breakdowns. This section is fairly self-explanatory and no additional detail is necessary in this technical analysis. It should; however, be noted that Subsections 133.02, 133.03, 134.04, and 134.05 are not specifically included in the permit as applicable requirements. These provisions of the *Rules* only apply if the permittee anticipates requesting consideration under Subsection 131.02 of the *Rules* to allow DEQ to determine if an enforcement action to impose penalties is warranted. Section 131.01 states: *"...The owner or operator of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135, and 136, as applicable. If the owner or operator anticipates requesting consideration under Subsection 131.02, then the owner or operator shall also comply with the applicable provisions of Subsections 133.02, 133.03, 134.04, and 134.05."* Failure to prepare or file procedures pursuant to Sections 133.02 and 134.04 is not a violation of the *Rules* in and of itself, as stated in Subsections 133.03(a) and 134.06(b). Therefore, since the permittee has the option to follow the procedures in Subsections 133.02, 133.03, 134.04, and 134.05; and is not compelled to, the subsections are not considered applicable requirements for the purpose of this permit and are not included as such.

The regulations governing excess emissions are currently state-only enforceable applicable requirements. The requirements of IDAPA 58.01.01, Sections 131-136 will become federally enforceable upon approval by the EPA as part of the SIP.

5.1.4.2 Compliance Demonstration

The compliance demonstration is contained within the text of Permit Condition 2.10. No further clarification is necessary here.

5.1.5 Open Burning

All open burning shall be done in accordance with IDAPA 58.01.01.600-616.

5.1.6 Renovation/Demolition

The permittee shall comply with all applicable portions of 40 CFR 61, Subpart M when conducting any renovation or demolition activities at the facility.

5.1.7 Chemical Accident Prevention Provisions

Any facility that has more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115, must comply with the requirements of the Chemical Accident Prevention Provisions at 40 CFR 68 no later than the latest of the following dates:

- Three years after the date on which a regulated substance present above a threshold quantity is first listed under 40 CFR 68.130.
- The date on which a regulated substance is first present above a threshold quantity in a process.

5.1.8 Fuel-Sulfur Content

This is a self-explanatory regulation. Refer to Permit Condition 2.16 and IDAPA 58.01.01.728.

5.1.9 Fuel-Burning Equipment

This is a self-explanatory regulation. Refer to Permit Condition 2.15 and IDAPA 58.01.01.676-677.

5.1.10 Recycling and Emissions Reductions

The purpose of 40 CFR 82, Subpart F is to reduce emissions of Class I and Class II refrigerants to the lowest achievable level during the service, maintenance, repair, and disposal of appliances in accordance with Section 608 of the Clean Air Act. Subpart F applies to any person servicing, maintaining, or repairing appliances except for motor vehicle emissions. Subpart F also applies to persons disposing of appliances, including motor vehicle air conditioners.

5.1.11 New Source Performance Standards, Subpart A Applicability

5.1.11.1Requirements

The facility subject to 40 CFR 60, Subpart Dc (NSPS) is each steam-generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989. In addition, affected facilities are those that have a maximum designed heat-input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). (See 40 CFR 60.40c.) Therefore, the facility must also comply with applicable sections of Subpart A, *NSPS General Provisions*. After reviewing the general provisions it was determined that only the following sections applied to this facility:

- 40 CFR 60.4, *Address*
- 40 CFR 60.7(a)(4) and (b), *Notification and Recordkeeping*
- 40 CFR 60.11(b), (c), (d), and (g), *Standards and Maintenance*
- 40 CFR 60.12, *Circumvention*
- 40 CFR 60.14, *Modification*
- 40 CFR 60.15, *Reconstruction*

5.1.11.2Compliance Demonstration

Most of these requirements are to show compliance. Each requirement is taken directly out of Subpart A and is included in the facility-wide conditions. No further clarification is necessary here.

5.1.11.3Non-Applicable Requirements

The following sections of Subpart A were not included in the permit as applicable requirements:

- 40 CFR 60.1, 2, 3, 5, 6, 9, 10, 16, and 17 - these requirements do not need to be included in the Tier I operating permit.
- 40 CFR 60.7(a)(1-3, 6) - these requirements address notification of initial startup of a facility. The NSPS source (i.e., Nebraska Boiler) at this facility was permitted (PTC No. 067-00017) and has been operating since June 2000.
- 40 CFR 60.7(a)(5,7) - this facility is not required to utilize a continuous opacity monitoring system.
- 40 CFR 60.7(c), (d), (e), and (f) - this facility does not utilize a continuous monitoring system.
- 40 CFR 60.7(g) and (h) - these are informational sections only.
- 40 CFR 60.8(a) - this requirement addresses notification of initial startup of a facility. The NSPS source (i.e., Nebraska Boiler) has been operating since June 2000.
- 40 CFR 60.8(f) and 11(a) - Subpart Dc does not require performance testing.

- 40 CFR 60.11(e) - this requirement refers to the initial compliance test. The Nebraska Boiler at this facility has been operating since June 2000.
- 40 CFR 60.11(f) - this requirement does not apply to this facility.
- 40 CFR 60.13 - this facility does not utilize any continuous monitoring systems.
- 40 CFR 60.18 - this facility does not have any control devices as described in the section.

5.1.12 Compliance Testing

Permit Condition 2.13 outlines the DEQ-approved method(s) by which the permittee should perform compliance testing. This condition also contains reporting requirements for compliance tests. The terms of Permit Condition 2.13 are self-explanatory.

5.1.13 Test Methods

Permit Condition 2.14 lists test methods to be used for compliance testing. If this permit requires any testing, it should be conducted in accordance with the procedures in IDAPA 58.01.01.157.

5.1.14 Monitoring and Recordkeeping

This condition details methods for monitoring and recordkeeping requirements of the permit. This is a self-explanatory regulation.

5.1.15 Reports and Certifications

Permit Condition 2.12 details methods for reporting requirements of the permit. This is a self-explanatory regulation.

6. REGULATORY ANALYSIS - EMISSIONS UNITS

6.1 LINE 1 DRYER, LINE 2 DRYER, AND LINE 4 DRYER

6.1.1 Emission Unit Description

The dryers receive the potatoes after being sorted, steam peeled, cut, and blanched to remove surface moisture. The dryers are operated exclusively on natural gas. After drying, potatoes are placed in the fryers. The Line 1, 2, and 4 dryers were installed in 1968, 1974, and 1989 respectively. The dryers rated combustion capacities are 24.1, 22, and 3.74 MMBtu/hr respectively. The dryers' potato capacities are 432, 456, and 264 T/day respectively.

The Line 1 and 2 dryers were manufactured by Proctor & Schwartz. The Line 4 dryer was manufactured by Shockey Sheetmetal, Inc. The equipment and stack specifications are described in the Tier I operating permit application dated February 1, 1999. Modifications to the dryers' stack heights are described in the Tier II operating permit application dated March 18, 2002.

J. R. Simplot was issued PTC No. 067-00017 on November 15, 1999 for the Line 2 and 4 dryers. The Line 1 dryer is a grandfather dryer and does not have any previous permits.

There is not a Line 3 dryer at the Heyburn plant.

Emissions from the dryers are uncontrolled.

6.1.2 Permit Requirement – PM_{10} Emission Limits - [Tier II Operating Permit No. 067-00017]

Permit Conditions 3.1, 3.2, and 3.3 are taken from the pending Tier II Operating Permit No. 067-00017. These conditions establish hourly and annual emissions rate limits for PM_{10} emissions from Line 1, 2, and 4 dryers. In accordance with IDAPA 58.01.01.322.01, these are applicable requirements for the Tier I operating permit.

6.1.2.1 Monitoring and Recordkeeping Requirements

Permit Condition 3.12 requires that JRS conduct a performance test on the Line 1, 2, and 4 dryer stacks in the first year of the five-year Tier I operating permit term for PM_{10} emissions. This permit condition also requires that JRS monitor the throughput rate during the performance tests. Permit Conditions 3.7, 3.8, and 3.9 set a throughput rate limit for each dryer.

Permit Condition 3.12.3 requires further performance testing, should the results of the initial performance tests for each of the dryers be within 75% of the limit specified in Permit Conditions 3.1, 3.2, and 3.3. In addition, yearly performance testing is required if the initial performance testing is within 90% of the limits specified in Permit Conditions 3.1, 3.2, and 3.3. These provisions assure compliance with Permit Conditions 3.1, 3.2, and 3.3.

6.1.3 Permit Requirement – Visible Emissions - [Tier II Operating Permit No. 067-00017]

Permit Condition 3.4 is taken from the pending Tier II Operating Permit No. 067-00017. This condition establishes a visible emissions limit for each of the dryer's stacks. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

Permit Conditions 2.8 and 2.9 stipulate requirements for visible emissions. To reduce redundant operating permit requirements, Permit Condition 3.4 states that the permittee shall comply with the facility-wide visible emissions requirements.

6.1.3.1 Monitoring and Recordkeeping Requirements

Permit Condition 3.13 requires that JRS comply with the facility-wide conditions for monitoring and recording visible emissions inspections.

6.1.4 Permit Requirement – Throughput Limits - [Tier II Operating Permit No. 067-00017]

Permit Conditions 3.7, 3.8, and 3.9 are taken from the pending Tier II Operating Permit No. 067-00017. These conditions establish throughput limits of finished potato product for each dryer on daily and on rolling 12-month basis. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirements for the Tier I operating permit.

6.1.4.1 Monitoring and Recordkeeping Requirements

Permit Condition 3.11 requires that JRS monitor and record both daily and annually, the finished potato product from the dryers. The daily finished potato product can be estimated from the monthly product records.

6.1.5 Permit Requirement – Process Weight Limitations - [IDAPA 58.01.01.701-702]

The PWR limitations apply to any process or process equipment at the facility, and establish PM emissions limits based on PWR. Lines 1 and 2 fryers are subject to IDAPA 58.01.01.702 because they were in operation prior to October 1, 1979. Lines 3 and 4 fryers are subject to IDAPA 58.01.01.701 because they were installed after October 1, 1979. The PWR PM standards are included in this Tier I operating permit because they are applicable requirements in accordance with IDAPA 58.01.01.322.01.

6.1.5.1 Monitoring and Recordkeeping Requirements

No monitoring and recordkeeping are required to demonstrate compliance with PWR PM standards. The following example explains why the operating permit does not require monitoring, recordkeeping, and recording requirements for the PWR PM standards. The JRS Heyburn facility has certified that the maximum potato PWR for the Line 2 dryer is 912,000 lb/day, measured as finished product. Therefore, the average hourly potato PWR for this process is 38,000 lbs (912,000/24).

The PWR equation used to estimate PM emissions is: $E=1.12\ (PW)^{0.27}$. Thus, PM emissions limits are 19.31 lb/hr [$E=1.12(38,000)^{0.27}$]. The PM_{10} emissions limit in the Tier II Operating Permit No.067-00017 equals 8.5 lbs/hr. Also, the ambient impact analyses of the PM_{10} emissions limit in the Tier II Operating Permit No. 067-00017 comply with NAAQS. Therefore, the PM emissions limit resulting from the PWR equation is subsumed under the more stringent PM_{10} emissions limits in the Tier II Operating Permit No.067-00017, pending. As such, the existing monitoring requirements are adequate to demonstrate compliance with the PWR emissions standards. No additional recordkeeping and reporting are required.

6.2 LINE 1 FRYER, LINE 2 FRYER, LINE 3 FRYER, AND LINE 4 FRYER

6.2.1 Emission Unit Description

Line 1, Line 2, Line 3, and Line 4 fryers are primarily used to process french fries. Batter is applied only to the Line 4 fryer. Line 1, Line 2, Line 3, and Line 4 fryers receive the potatoes after the product is sorted, steam-peeled, cut and blanched, and dried. Line 3 is primarily used to process the pre-formed products. There is no dryer associated with the Line 3 fryer. Hot cooking oil is used to partially cook the potatoes before they are frozen. Steam coils are used to supply the heat to the oil in the fryers.

The rated potato processing capacities of the Line 1, 2, 3, and 4 fryers are 432, 456, 72, and 264 T/day respectively. The Line 1 fryer was manufactured by JRS in 1968. The Line 2 fryer was manufactured by Gem Equipment and was installed in 1968. The Line 3 fryer was manufactured by Heat and Control, Incorporated and installed in 1986. The Line 4 fryer was manufactured by Stein and installed in 1989. The Line 2 and 3 fryers were permitted by DEQ on November 15, 1999.

All fryers are primarily vented to a WESP, which controls the PM emissions. The WESP was manufactured by Geoenergy International Corporation. Its stack specifications are described in the Tier II operating permit application dated March 18, 2002.

6.2.2 Permit Requirement – PM_{10} Emission Limits - [Tier II Operating Permit No. 067-00017]

Permit Condition 4.1 is taken from the pending Tier II Operating Permit No. 067-00017. This permit condition establishes hourly and annual emissions rate limits for PM_{10} emissions from the WESP stack. The Line 1, 2, 3, and 4 fryers are all vented to the WESP. Permit Condition 4.1 is an applicable requirement for the Tier I operating permit, pursuant to IDAPA 58.01.01.322.01.

6.2.2.1 Monitoring and Recordkeeping Requirements

Permit Condition 4.10 requires that JRS conduct a performance test on the WESP stack during the first year of the five-year Tier I operating permit term for PM_{10} emissions. This permit condition also requires that JRS monitor throughput rate during the performance tests. Permit Condition 4.6 sets a throughput rate limit for all of the fryers.

Permit Condition 4.10.5 requires further performance testing should the results of the initial performance tests on the WESP stack be within 75% of the limit specified in Permit Condition 4.1. In addition, yearly performance testing is required if the initial performance testing is within 90% of the limits specified in Permit Condition 4.1. These provisions assure compliance with Permit Condition 4.1.

6.2.3 Permit Requirement – Visible Emissions - [Tier II Operating Permit No. 067-00017]

Permit Condition 4.2 is taken from the pending Tier II Operating Permit No. 067-00017. This condition establishes a visible emissions limit for the WESP stack. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

Permit Conditions 2.8 and 2.9 stipulate requirements for visible emissions. To reduce redundant operating permit requirements, Permit Condition 4.2 states that the permittee shall comply with the facility-wide visible emissions requirements.

6.2.3.1 Monitoring and Recordkeeping Requirements

Permit Condition 4.12 requires that JRS comply with the facility-wide conditions for monitoring and recording visible emissions inspections.

6.2.4 Permit Requirement – Throughput Limits - [Tier II Operating Permit No.067-00017]

Permit Condition 4.6 is taken from the Tier II Operating Permit No.067-00017, which is pending. This condition establishes finished potato product throughput limits for all the fryers on a daily and rolling 12-month basis. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.2.4.1 Monitoring and Recordkeeping Requirements

Permit Condition 4.9 requires that JRS monitor and record both daily and annually, the finished potato product from the fryers. The daily finished potato product can be estimated from the monthly product records.

6.2.5 Permit Requirement – Process Weight Limitations - [IDAPA 58.01.01.701-702]

The PWR limitations apply to any process or process equipment at the facility, and establish PM emissions limits based on the PWR. The Line 1 and 2 fryers are subject to IDAPA 58.01.01.702 because they were in operation prior to October 1, 1979. The Line 3 and 4 fryers are subject to IDAPA 58.01.01.701 because they were installed after October 1, 1979. The PWR PM standards are included in this Tier I operating permit because they are applicable requirements in accordance with IDAPA 58.01.01.322.01.

6.2.5.1 Monitoring and Recordkeeping Requirements

No monitoring and recordkeeping are required to demonstrate compliance with PWR PM standards. The following example explains why the operating permit does not require monitoring, recordkeeping, and recording requirements for the PWR PM standards. The JRS Heyburn facility has certified that the maximum potato PWR for all of the fryers is 1,224 T/day, measured as finished product. The average hourly PWR for this process is 102,000 lbs (1,224 x 2,000/24).

The PWR equation used to estimate PM emissions is $E=1.12(PW)^{0.27}$. Thus, PM emissions limits are 25.21 lbs/hr [$E=1.12(102,000)^{0.27}$]. The PM_{10} emissions limit in the Tier II Operating Permit No.067-00017 equals 10.53 lbs/hr. Also, the ambient impact analyses of the PM_{10} emissions limit in the Tier II Operating Permit No. 067-00017 comply with NAAQS. Therefore, the PM emissions limit resulting from the PWR equation is subsumed under the more stringent PM_{10} limits in the Tier II Operating Permit No.067-00017, pending. As such, the existing monitoring requirements are adequate to demonstrate compliance with the PWR emissions standards. No additional recordkeeping and reporting are required.

6.2.6 Permit Requirement – Operating Requirements for the Air Pollution Control Equipment (the WESP) - [Tier II Operating Permit No.067-00017]

Permit Conditions 4.7 and 4.8 are taken from the Tier II Operating Permit No.067-00017, which is pending. These conditions require that the WESP operate within the manufacturer's specifications. The Tier I operating permit requires that JRS install, calibrate, maintain, and operate the WESP within specific operating parameters. These parameters include the following:

- secondary voltage at each T-R set for each field of the WESP, and
- temperature differential measurement between the inlet and the outlet.

In accordance with IDAPA 58.01.01.322.01, these are applicable requirements for the Tier I operating permit.

6.2.6.1 Monitoring and Recordkeeping Requirements

Permit Condition 4.11 requires the permittee to develop an O&M manual that will address WESP operations as recommended by the manufacturer. The operating parameters stated in Section 6.2.6 of this memo will be included in the O&M manual to ensure proper operation of the WESP.

6.3 SPRINGFIELD, CLEAVER-BROOKS, AND NEBRASKA BOILERS

6.3.1 Emission Unit Description

The JRS Heyburn plant operates three natural gas-fired boilers: Springfield boiler, Cleaver-Brooks boiler, and a Nebraska boiler with heat input capacities of 37.8 MMBtu/hr, 76.7 MMBtu/hr, and 80 MMBtu/hr respectively. The Springfield and Cleaver-Brook boilers were installed in 1960 and 1968, respectively; and the Nebraska boiler was installed in 1999. Therefore, the Springfield and Cleaver-Brooks boilers are not subject to NSPS (Subpart Dc) because they were installed prior to the effective date of these regulations. The Nebraska boiler is subject to NSPS, Subpart Dc.

The Springfield and Nebraska boilers were permitted by DEQ on November 15, 1999 and June 30, 2000 respectively. The Cleaver-Brooks boiler is a grandfather and does not have any previous permits.

The boilers' stack specifications are described in the Tier II operating permit application dated March 18, 2002.

The boilers have no air pollution control equipment. However, the Nebraska boiler is equipped with low NO_x burners.

6.3.2 Permit Requirement – Grain-loading Standard – [IDAPA 58.01.01.675; Tier II Operating Permit No.067-00017]

Permit Condition 5.1 is taken from the *Rules* and from the Tier II Operating Permit No.067-00017, which is pending. This condition applies to the three natural gas-fired boilers operating at the facility. Therefore, in accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.3.2.1 Monitoring and Recordkeeping Requirements

Permit Condition 5.4 states that the boilers shall burn natural gas exclusively. Using emissions factors from the EPA's AP-42 and the boilers' stack flow rate, PM emissions were estimated and then compared to the grain-loading standard for compliance demonstration purposes. The following calculation shows the Nebraska Boiler, which has a capacity of 80 MMBtu/hr and a stack flow rate of 29,000 acfm, will not exceed the grain-loading standard as long as the boiler is fired with natural gas:

(7.6 lb PM/MMscf gas combusted) x (1 scf/1030 Btu) x (80 MMBtu/hr) = 0.590 lb PM/hr

(0.590 lb PM/hr) x (7000 gr/lb) ÷ (29,000 acfm) x (60 min/hr) = 0.0024 gr/scf (wet basis)

Natural gas combustion products contains approximately 19% water vapor; therefore, on a dry basis, the PM concentration in the exhaust gas would be:

(0.0024 gr/scf) x (1/ 0.19) = 0.013 gr/dscf

The Springfield and Cleaver-Brook boilers have lower heat input capacities than the Nebraska Boiler. Thus, a similar calculation to that used above will result in lower PM concentrations for each boiler.

Therefore, as long as JRS uses only natural gas in the boilers, they are in compliance with the grain-loading standard.

Because the boilers have only the capability to burn natural gas, no monitoring or recordkeeping of any surrogate operating parameter is required to demonstrate compliance with the grain-loading standard.

6.3.3 Permit Requirement – PM_{10} Emission Limits - [Tier II Operating Permit No.067-00017]

Permit Condition 5.2 is taken from the pending Tier II Operating Permit No.067-00017. This permit condition establishes hourly and annual emissions rate limits for PM_{10} emissions from the boilers' stacks. Permit Condition 5.2 is an applicable requirement for the Tier I operating permit, pursuant to IDAPA 58.01.01.322.01.

6.3.3.1 Monitoring and Recordkeeping Requirements

Permit Condition 5.4 requires that JRS operate the boilers on natural gas exclusively to demonstrate compliance with the PM_{10} emissions limits. It is assumed that burning natural gas will not result in significant PM_{10} emissions. No monitoring or recordkeeping of any surrogate operating parameter is required to demonstrate compliance with the PM_{10} emissions limits.

6.3.4 Permit Requirement – Visible Emissions - [Tier II Operating Permit No.067-00017]

Permit Condition 5.3 is taken from the Tier II Operating Permit No.067-00017, which is pending. This condition establishes a visible emissions limit for each boiler stack. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

Permit Conditions 2.8 and 2.9 stipulate requirements for visible emissions. To reduce redundant operating permit requirements, Permit Condition 5.3 states that the permittee shall comply with the facility-wide visible emissions requirements.

6.3.4.1 Monitoring and Recordkeeping Requirements

The permittee is required to comply with the facility-wide conditions for monitoring and recording visible emissions inspections.

6.3.5 Permit Requirement – New Source Performance Standards – Subpart Dc - [40 CFR 60.48c(a), .48c(g), & .48c(l); Tier II Operating Permit No.067-00017]

Permit Condition 5.6 requires that the permittee comply with NSPS requirements, Subpart Dc. The Nebraska Boiler is subject to 40 CFR 60, Subpart Dc because construction, reconstruction, or modification of the emissions unit occurred after June 9, 1989, and the emissions unit has a maximum designed heat input capacity between 10 - 100 MMBtu/hr. There are requirements under 40 CFR 60.48c(g) and 40 CFR 60.48c(l). These requirements are minimal, and relate only to monitoring and reporting requirements

because the Nebraska Boiler is fired exclusively on natural gas. Subpart Dc requires that the facility monitor and record the fuel type and amount used on a daily basis, and maintain the documentation for two years.

6.3.5.1 Monitoring and Recordkeeping Requirements

Permit Condition 5.6 requires the permittee to monitor and record the amount of fuel combusted during each day in accordance with 49 CFR 60.48c(g). In accordance with 40 CFR 60.48c(l), the permittee must maintain the records of daily fuel usage for a two-year period. This requirement is superseded by the Tier I operating permit, which mandates that records must be maintained for a period of at least five years in accordance with IDAPA 58.01.01.322.07.

6.3.6 Permit Requirement – Low NO_x Combustion Technology - [Tier II Operating Permit No.067-00017]

Permit Condition 5.5 is taken from the Tier II Operating Permit No.067-00017, which is pending. This condition establishes a requirement for the Nebraska Boiler to be equipped with low NO_x burner technology. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.3.6.1 Monitoring and Recordkeeping Requirements

The Nebraska Boiler is already equipped with the low NO_x burner. As long as the Nebraska Boiler is operated following manufacturer specifications, the likelihood that noncompliance with this permit term is insignificant. Manufacturer specifications are not included in the permit because it is assumed in good faith that JRS will operate the boiler according to those specifications. The JRS Heyburn facility will maintain a copy of the boiler manufacturer specifications onsite.

6.4 ETHANOL PRODUCTION PLANT AND STORAGE TANKS

6.4.1 Emission Unit Description

A description of the ethanol production plant can be found in Section 4.1.4 of this technical memorandum. The ethanol plant is a continuous cook, batch fermentation, and continuous/dehydration system. The production plant uses fruit, grain, and vegetable waste (including potato waste from the Heyburn facility and other facilities) in combination with various chemicals and enzymes to produce a mixture of ethanol, water, and solids. The mixture is pumped to an atmospheric distillation tower where the ethanol is separated from the water and solids. The water and solids exit through the bottom of the tower and are pumped to a centrifuge; the centrifuge separates the solids from the liquids. The solids are sold to make cattle feed and the liquids go to waste treatment. The ethanol is pumped from the distillation column to a molecular sieve dehydrator to remove the remaining water. The result is 200 proof alcohol that flows from the dehydrator to shift tanks.

There are two air emissions point sources associated with the ethanol plant, and both sources primarily emit VOCs. The first is referred to as ethanol production plant, while the second source is the tank vents on the ethanol storage tanks. The VOC emissions from the ethanol plant and the storage tanks are vented uncontrolled to the atmosphere. The emissions factor from the ethanol production is from the EPA's AIRS (Alcohol Production by Fermentation - SCC 30125010). A maximum of 5 million gallons of ethanol is produced per year. The JRS Heyburn facility estimated the VOC emissions from the storage tanks based on the Storage Tank Emissions Calculation Software (version 2.0) distributed by the EPA.

Review of 40 CFR 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification commenced after July 23, 1984*, indicated that none of the storage tanks at this facility are subject to Subpart Kb.

6.4.2 Permit Requirement – Visible Emissions - [Tier II Operating Permit No.067-00017]

Permit Condition 6.1 is taken from the Tier II Operating Permit No.067-00017, which is pending. This condition establishes a visible emissions limits for the ethanol plant stack and for the storage tank vents. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

Permit Conditions 2.8 and 2.9 stipulate requirements for visible emissions. To reduce redundant operating permit requirements, Permit Condition 6.2 states that the permittee shall comply with the facility-wide visible emissions requirements.

6.4.2.1 Monitoring and Recordkeeping Requirements

Permit Condition 6.2 requires that the permittee comply with the facility-wide conditions for monitoring and recording visible emissions inspections.

6.5 MATERIAL HANDLING SYSTEM

6.5.1 Emission Unit Description

The ethanol plant receives shelled corn, whole wheat, milo, granulated sugar, and other grains from delivery trucks. The raw material is moved several times via screw conveyors and recovery elevators into storage bins, surge bins, and weigh belts. The material is then dropped into a hammermill to be ground into the correct size for use in the ethanol plant.

The material handling system's stack specifications are described in the Tier II operating permit application dated March 18, 2002.

A baghouse controls PM_{10} emissions from the receiving area, material handling operations, and the hammermill.

6.5.2 Permit Requirement – Visible Emissions - [Tier II Operating Permit No.067-00017]

Permit Condition 7.1 is taken from the pending Tier II Operating Permit No.067-00017. This condition establishes a visible emissions limit for the material handling system stack. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

Permit Conditions 2.8 and 2.9 stipulate requirements for visible emissions. To reduce redundant operating permit requirements, Permit Condition 7.8 states that the permittee shall comply with the facility-wide visible emissions requirements.

6.5.2.1 Monitoring and Recordkeeping Requirements

Permit Condition 7.8 requires that the permittee comply with the facility-wide conditions for monitoring and recording visible emissions inspections.

6.5.3 Permit Requirement – Process Weight Limitations - [IDAPA 58.01.01.701-702]

The PWR limitations apply to any process or process equipment at the facility, and establish PM emissions limits based on the PWR. The material handling system is subject to IDAPA 58.01.01.701 because it was installed after October 1, 1979. The PWR PM standards are included in this Tier I operating permit because they are applicable requirements in accordance with IDAPA 58.01.01.322.01.

6.5.3.1 Monitoring and Recordkeeping Requirements

No monitoring and recordkeeping are required to demonstrate compliance with PWR PM standards. The following example explains why the operating permit does not require monitoring, recordkeeping, and recording requirements for the PWR PM standards. The JRS Heyburn plan has certified that the maximum material handling system PWR is 16,800 lbs/hr.

The PWR equation used to estimate PM emissions is $E=1.10\ (PW)^{0.25}$. Thus, PM emissions limits are 12.52 lbs/hr [$E=1.10(16,800)^{0.25}$]. The PM_{10} emissions are equal to 0.15 lbs/hr, as guarranteed by the manufacturer (Bratney Companies). Also, the ambient impact analyses of the PM_{10} emissions comply with NAAQS. Therefore, the PM emissions limit resulting from the PWR equation is subsumed under the more stringent PM_{10} emissions that are guarranteed by the manufacturer. As such, the existing monitoring requirements are adequate to demonstrate compliance with the PWR emissions standards. No additional recordkeeping and reporting are required.

6.6 ADI-BVF DIGESTER FLARES

6.6.1 Emission Unit Description

The ADI-BVF anaerobic digester, where the water from the processed potatoes at the plant is retained and acted upon by bacteria, is located at the JRS wastewater treatment facility. The biogas byproducts (CH_4, CO_2, and H_2S are collected from under the cover of the digester and burned by a flare system. The biogas composition is approximately 60% CH_4, 40% CO_2, and less than 1% H_2S. Pollutants emitted from the biogas flares are PM/PM_{10}, SO_2, CO, and NO_x.

Hydrogen sulfide emissions will be controlled by a scrubbing system located between the ADI-BVF anaerobic digester and the biogas flares. The scrubbing system was manufactured by Phoenix Biosystems, Inc. It is an Iron Sponge Gas Purifier, model Vartec-800, with three units in parallel. The system uses a modular bio-filter or bio-scrubber, which is packed with ferric oxide impregnated redwood chips (iron sponge) media to remove H_2S from the biogas stream. The scrubbing system consists of three down-flow, modular-fiberglass bio-filters, operated in parallel to remove 60% or more of the H_2S in the gas stream. Each bio-filter is a container that measures 12 feet in diameter and 10 feet in height. The treated biogas will be mixed with untreated biogas before it is sent to the flares. When the biogas is flared, the methane is converted to CO_2 and water and H_2S is converted to SO_2 gas.

A meter is used to measure the H_2S concentrations; it is located between the scrubber outlet and flare.

Emissions of PM, CO, and NO_x from the flares are uncontrolled.

6.6.2 Permit Requirement - Sulfur Dioxide Emissions Limits - [Tier II Operating Permit No.067-00017]

Permit Condition 8.1 is taken from the pending Tier II Operating Permit No.067-00017. This permit condition establishes an annual emissions rate limit for SO_2 emissions from the ADI-BVF digester flares. Permit Condition 8.2 is an applicable requirement for the Tier I operating permit, pursuant to IDAPA 58.01.01.322.01.

6.6.2.1 Monitoring and Recordkeeping Requirements

Emissions of SO_2 from the flares are directly related to burning the H_2S gas, which is a biogas byproduct from the ADI-BVF digester. Hydrogen sulfide in the biogas reacts with oxygen in the flames to form SO_2. It is assumed that all sulfur in the biogas is in the form of H_2S. It is also assumed that all of the H_2S gas is converted to SO_2. Permit Condition 8.6 requires that JRS install, calibrate, maintain, and operate a biogas flow meter and H_2S gas monitor. Permit Condition 8.8 requires that JRS monitor and record the H_2S concentrations and the biogas flow on an average weekly basis. Permit Condition 8.9 requires that JRS use the biogas flow rate and the H_2S concentrations to calculate the annual SO_2 emissions from the biogas flares. Therefore, the monitoring, recordkeeping, and reporting requirements for Permit Condition 8.1 are

satisfied by the monitoring, recordkeeping, and reporting requirements for Permit Conditions 8.6, 8.8, and 8.9. The JRS Heyburn facility will maintain records of the biogas flow and the H_2S concentration onsite.

6.6.3 Permit Requirement – Flares Operating Requirements - [Tier II Operating Permit No.067-00017]

Permit Condition 8.4 is taken from the pending Tier II Operating Permit No.067-00017. This permit condition require that the biogas flares' pilot flame be present when the ADI-BVF digester is operating. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.6.3.1 Monitoring and Recordkeeping Requirements

Permit Condition 8.5 requires that JRS operate a device to detect the presence of a flame in the biogas flares. The device will be designed to fire a pilot flame whenever the presence of the flame is undetected.

6.6.4 Permit Requirement – H_2S Performance Test - [Tier II Operating Permit No.067-00017]

Permit Condition 8.7 is taken from the Tier II Operating Permit No.067-00017, which is pending. This permit condition requires that JRS conduct a performance test to measure H_2S concentrations (as a surrogate for the SO_2 emissions in the flares) in the biogas prior to the biogas flares. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.6.4.1 Monitoring and Recordkeeping Requirements

Permit Condition 8.7 requires that JRS conduct a performance test within one year of issuance of the Tier I operating permit to measure the H_2S concentrations in the biogas prior to the biogas flares.

6.6.5 Permit Requirement – Operating Requirements for the Air Pollution Control Equipment (the Iron Sponge Scrubber System) - [Tier II Operating Permit No.067-00017]

Permit Condition 8.10 is taken from the pending Tier II Operating Permit No.067-00017. This condition requires that JRS develop an O&M manual following manufacturer specifications for the iron sponge scrubber system. The O&M manual will include manufacturer specifications for continuously regenerating system media (i.e., iron oxide) to extend its life. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.6.5.1 Monitoring and Recordkeeping Requirements

Continuously regenerating the system media (iron oxide) will be monitored following manufacturer recommendations. A recording documenting the continuous regeneration of the iron oxide will be maintained onsite at all times and will be made available to DEQ representatives upon request.

6.6.6 Permit Requirement – Rules for Control of Incinerators - [IDAPA 58.01.01.785-786]

Permit Condition 8.4 is a paraphrase of IDAPA 58.01.01.786.01, and establishes a limit on particulate discharged from the waste flare. In accordance with IDAPA 58.01.01.006.51, the waste flare is an incinerator and is subject to the provisions of IDAPA 58.01.01.785-786. In accordance with IDAPA 58.01.01.322.01, this is an applicable requirement for the Tier I operating permit.

6.6.6.1 Monitoring and Recordkeeping Requirements

No monitoring and recordkeeping are required to demonstrate compliance with particulate matter emissions standards (0.2 lb PM/100 lb of biogas burned). The incinerator's PM emissions standard from the biogas flares are less stringent than the PM_{10} emissions limits in Tier II Operating Permit No. 067-00017. Also, the ambient impact analyses of PM_{10} emissions limits in Tier II Operating Permit No.067-00017 show compliance with the NAAQS. Therefore, the PM emissions resulted from burning the biogas are subsumed under the more stringent PM_{10} limits contained in Tier II Operating Permit No.067-00017 dated July 30,

2002. Thus, no monitoring and recordkeeping are required to demonstrate compliance with the incinerator's PM standards. The existing monitoring requirements are adequate to demonstrate compliance with the PM emissions standards. No additional recordkeeping and reporting are required.

6.6.7 Non-applicability Determinations

6.6.7.1 Process Weight Limitations, IDAPA 58.01.01.700

The process weight limitation does not apply to the biogas unit because the waste flare does not meet the definition of process or process equipment (IDAPA 58.01.01.006.79). The waste flare is an incinerator (IDAPA 58.01.01.006.51), which is defined as a source designed for the destruction of refuse by burning.

6.6.7.2 Visible Emissions - [IDAPA 58.01.01.625]

The visible emissions limitation in IDAPA 58.01.01.625 does not apply to the biogas flares. IDAPA 58.01.01.625 applies to stacks or vents. A stack is defined in IDAPA 58.01.01.006.100 as "any point in a source arranged to conduct emissions to the ambient air, including a chimney, flue, conduit, or duct but not including flares." Therefore, IDAPA 58.01.01.625 does not apply to this source. In addition, due to the intermittent emissions from the flares, technically opacity can't be observed from this source.

6.8 AIR MAKEUP UNIT (AMU)

6.8.1 Emission Unit Description

The natural gas-fired AMUs are used at JRS to maintain a consistent indoor temperature of 65°F to 70°F from receiving to packaging and are used during cold weather. The JRS Heyburn facility requests that many of these units be qualified as insignificant activities. However, there is one natural gas-fired heating unit (S-H-H3) used to maintain the inside room temperature at the receiving warehouse that does not qualify as an insignificant activity under IDAPA 58.01.01.317.b.i.(30). This heater has a rated capacity of 11.9 MMBtu/hr and was installed in 1990. Emissions of NO_x from AMU (S-H-H3) are greater than the emissions of 10% levels contained in IDAPA 58.01.01.006.92 of the definition of significant. Therefore, this unit is included in this Tier I operating permit.

Combustion emissions for the heaters are based on continuous operation at burner capacity, assuming all emissions are released to the atmosphere. The equipment and the emissions for the AMU (S-H-H3) are described in Section 2C, of the operating permit application dated February 1, 1999.

6.8.2 Permit Requirement – Burning Natural Gas Exclusively - [IDAPA 58.01.01.322.01]

Permit Condition 9.1 is an applicable requirement in accordance with IDAPA 58.01.01.322.01. There are no emissions limitations or standards that apply to this unit. DEQ believes that burning only natural gas in this unit will comply with this requirement.

6.8.2.1 Monitoring and Recordkeeping Requirements

No monitoring or recordkeeping are required because natural gas is used exclusively in this unit.

6.8.3 Non-applicability Determinations

6.8.3.1 Grain-loading Standard - [IDAPA 58.01.01.677]

IDAPA 58.01.01.677 does not apply to this source because the AMU (S-H-H3) is not defined as fuel-burning equipment. Fuel-burning equipment is defined in IDAPA 58.01.01.006.41 *as "any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer."* The heat that is generated from this AMU is direct heat rather than indirect as defined in the above rules, therefore IDAPA 58.01.01.677 does not apply.

6.8.3.2 Visible Emissions - [IDAPA 58.01.01.625]

The visible emissions limitation in IDAPA 58.01.01.625 states that a person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period, which is greater than 20% opacity as determined by IDAPA 58.01.01.625. Technically, IDAPA 58.01.01.625 should apply to this emissions unit (S-H-H3). However, it is vented inside a building and there is no actual vent to observe the opacity. Because natural gas will be burned exclusively in this unit, the possibility of exceeding the 20% opacity is negligible due to the size of the source. Therefore, IDAPA 58.01.01.625 will not be stated as an applicable requirement in the Tier I operating permit.

7. INSIGNIFICANT ACTIVITIES

Activities and emissions units identified as insignificant under IDAPA 58.01.01.317.01(b) are listed in the Tier I operating permit to qualify for a permit shield.

Table 7.1 INSIGNIFICANT ACTIVITIES

Description	Insignificant Activities Section Citation IDAPA 58.01.01.317.01(b)(l)
Storage tanks and vessels with less than 260-gallon capacity with appropriate closures.	(1)
Storage tanks and vessels with less than 1,100-gallon capacity with appropriate closures, not for use with hazardous air pollutants and with a maximum vapor pressure of 550 millimeters of Mercury.	(2)
Unleaded gasoline storage tank and off-specification ethanol storage tank.	(3)
Propane storage tank.	(4)
Various natural gas-fired air makeup units rated less than five MMBtu/hr.	(5)
Various combustion sources rated less than five MMBtu/hr, containing less than 0.4% by weight sulfur for coal or less than 1% by weight for other fuels.	(6)
Diesel-fired emergency generators rated less than one MMBtu/hr.	(7)
Welding using less than one ton per day of welding rod.	(9)
Ink used to print on packaging using less than two gallons per day.	(12)
Various water-cooling towers that are non-process-contact coolers and not greater than 10,000 gallons per minute.	(13)
Water chlorination less than 20,000,000 gallons per day.	(16)
Natural gas, propane, or kerosene-fired space heaters rated less than five MMBtu/hr.	(18)
Equipment used to exclusively pump, load, and store vegetable oil.	(20)
Cleaning and stripping activities and equipment using solutions with less than 1% VOCs by weight.	(26)
Storage and handling of water-based lubricants for metal working with an organic content of less than 10%.	(27)
Heaters (AMUs) S-H-H1, S-H-H2, S-H-H4, S-H-H5, S-H-H6, S-H-H7, S-H-H8, Reyco (Rey Industries, 8.8 MMBtu/hr), S-H-H9.	(30)

8. ALTERNATIVE OPERATING SCENARIOS

No alternative operating scenarios were identified by the facility.

9. TRADING SCENARIOS

There were no trading scenarios requested by the facility.

10. ACID RAIN PERMIT

This does not apply to the JRS facility.

11. COMPLIANCE PLANS AND COMPLIANCE CERTIFICATION

11.1 Compliance Plans

JRS certified compliance with all applicable requirements. No compliance plan was submitted.

11.2 Compliance Certification

JRS is required to periodically certify compliance in accordance with General Provision 21.

12. AIRS DATABASE

AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIPS	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	A					B A	U
NO_x	A					A	U
CO	A					A	U
PM_{10}	A					A	U
PT (Particulate)	A		A			A	U
VOC	B					B	U
THAP (Total HAPs)	NA B					B	NA
			APPLICABLE SUBPART				
			Dc				

AIRS/AFS Classification Codes

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant that is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

13. REGISTRATION FEES

The JRS Heyburn plant is a major facility as defined by IDAPA 58.01.01.008.10, and is therefore subject to annual registration and registration fees (IDAPA 58.01.01.387-399).

14. RECOMMENDATION

Based on the Tier I operating permit application and review of the federal regulations and state rules, staff recommends DEQ issue final Tier I operating permit No. 067-00017 to the JR Simplot Co. for their Heyburn potato processing facility.

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cc: Joan Lechtenberg, Air Quality Division
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